Problem L: Life Is But A Dream

A boat beneath a sunny sky,
Lingering onward dreamily
In an evening of July—

Children three that nestle near,
Eager eye and willing ear,
Pleased a simple tale to hear—

Long has paled that sunny sky:
Echoes fade and memories die.
Autumn frosts have slain July.

Still she haunts me, phantomwise,
Alice moving under skies
Never seen by waking eyes.

Children yet, the tale to hear,
Eager eye and willing ear,
Lovingly shall nestle near.

In a Wonderland they lie,
Dreaming as the days go by,
Dreaming as the summers die:

Ever drifting down the stream—
Lingering in the golden gleam—
Life, what is it but a dream?

Figure 1: Alice recalling her dream

And so, we reach the end of the Alice's story. In the closing poem, we can see that many words end with a common sequence of letters (that is, they have a common *suffix*), mainly for rhyming purposes.

For this problem, your task is to write a program that analyses a block of text (like a poem, for example), and can answer to queries of three types. Given an arbitrary suffix **S**, we are interested in the following queries:

- What was the first word in the text with the suffix *S*?
- What was the last word in the text with the suffix *S*?
- How many words in the whole text have the suffix *S*?

The queries are case–insensitive (a lowercase **x** matches an uppercase **X**, for example).

Input

Input starts with a positive integer **T**, that denotes the number of test cases ($T \leq 10$).

Each test case starts with a blank line. The next line contains an integer **M** that represents the amount of lines of text to analyse. The following M lines contain arbitrary text that can include whitespaces and any printable character. The maximum length for any line of text is 10,000 characters.

$1 \leq M \leq 10$

All lines of text contain between 1 and 30 words. A word is a sequence of 1 or more consecutive alphabetic characters (lowercase or uppercase). Any non-alphabetic character (including punctuation marks) must be considered as whitespace. Every word will have a length between 1 and 250 (inclusive).

After the lines of text comes an integer **Q** in a single line, denoting the number of queries to process.

$1 \leq Q \leq 300$

The following Q lines contain a query of the form **Type Suffix** where "Type" can be one of three alternatives:

- **F** - Asks for the first word with the given *Suffix*.
- **L** - Asks for the last word with the given *Suffix*.
- **N** - Asks for the total number of words with the given *Suffix*.

The *Suffix* will have a length between 1 and 250 (inclusive) and it will be completely in lowercase letters.

Output

For each test case, print the case number in one line. Then, for every query, print its answer in a single line. If the query type is **F** or **L** and it can be answered with a valid word, print the word in lowercase letters. If no word with the given *Suffix* was found in the text, print a single asterisk symbol (*****).

Sample Input

```
2

3
Children three that nestle near,
Eager eye and willing ear,
Pleased a simple tale to hear-
3
F ear
L ear
N ear

3
Ever drifting down the stream-
Lingering in the golden gleam-
Life, what is it but a dream?
4
F in
L ear
N ing
L eam
```

Output for Sample Input

```
Case 1:
near
hear
3
Case 2:
in
*
2
dream
```